

CLAIMS

1. A collapsible lens barrel whose lens group is advanced when an image is captured, the collapsible lens barrel comprising:

5 a driving frame for driving the lens group, comprising a cam pin and a demating prevention pin that have an identical shape including a cylindrical portion and a tapered portion at its tip;

 a cam frame comprising a cam groove and a demating prevention groove that mate with the cam pin and the demating prevention pin,
10 respectively; and

 a first protrusion provided on at least one side in an optical axis direction of a portion of the demating prevention groove with which the demating prevention pin mates when the driving frame is advanced;

 wherein, in a state where the lens group has been advanced, the
15 cylindrical portion of the demating prevention pin may contact the first protrusion to prevent the cam pin from demating from the cam groove.

2. A collapsible lens barrel whose lens group is retracted when an image is not captured, the collapsible lens barrel comprising:

20 a driving frame for driving the lens group, comprising a cam pin and a demating prevention pin that have an identical shape including a cylindrical portion and a tapered portion at its tip;

 a cam frame comprising a cam groove and a demating prevention groove that mate with the cam pin and the demating prevention pin,
25 respectively; and

 a second protrusion provided on at least one side in an optical axis direction of a portion of the demating prevention groove with which the demating prevention pin mates when the driving frame is retracted;

 wherein, in a state where the lens group has been retracted, the
30 cylindrical portion of the demating prevention pin may contact the second

protrusion to prevent the cam pin from demating from the cam groove.

3. A collapsible lens barrel whose lens group is advanced when an image is captured and whose lens group is retracted when the image is not captured,
5 the collapsible lens barrel comprising:

a driving frame for driving the lens group, comprising a cam pin and a demating prevention pin that have an identical shape including a cylindrical portion and a tapered portion at its tip;

- 10 a cam frame comprising a cam groove and a demating prevention groove that mate with the cam pin and the demating prevention pin, respectively;

a first protrusion provided on at least one side in an optical axis direction of a portion of the demating prevention groove with which the demating prevention pin mates when the driving frame is advanced; and

- 15 a second protrusion provided on at least one side in the optical axis direction of a portion of the demating prevention groove with which the demating prevention pin mates when the driving frame is retracted;

- 20 wherein, in a state where the lens group has been advanced, the cylindrical portion of the demating prevention pin may contact the first protrusion to prevent the cam pin from demating from the cam groove, and

in a state where the lens group has been retracted, the cylindrical portion of the demating prevention pin may contact the second protrusion to prevent the cam pin from demating from the cam groove.

- 25 4. A collapsible lens barrel whose lens group is advanced when an image is captured, the collapsible lens barrel comprising:

a driving frame for driving the lens group, comprising a cam pin including a cylindrical portion and a tapered portion at its tip;

- 30 a cam frame comprising a cam groove that mates with the cam pin; and

a first protrusion provided on at least one side in an optical axis direction of a portion of the cam groove with which the cam pin mates when the driving frame is advanced;

wherein, in a state where the lens group has been advanced, the
 5 cylindrical portion of the cam pin may contact the first protrusion to prevent the cam pin from demating from the cam groove.

5. A collapsible lens barrel whose lens group is retracted when an image is not captured, the collapsible lens barrel comprising:

10 a driving frame for driving the lens group, comprising a cam pin including a cylindrical portion and a tapered portion at its tip;

a cam frame comprising a cam groove that mates with the cam pin;
 and

a second protrusion provided on at least one side in an optical axis
 15 direction of a portion of the cam groove with which the cam pin mates when the driving frame is retracted;

wherein, in a state where the lens group has been retracted, the cylindrical portion of the cam pin may contact the second protrusion to prevent the cam pin from demating from the cam groove.

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6. A collapsible lens barrel whose lens group is advanced when an image is captured and whose lens group is retracted when the image is not captured, the collapsible lens barrel comprising:

a driving frame for driving the lens group, comprising a cam pin
 25 including a cylindrical portion and a tapered portion at its tip;

a cam frame comprising a cam groove that mates with the cam pin;

a first protrusion provided on at least one side in an optical axis direction of a portion of the cam groove with which the cam pin mates when the driving frame is advanced; and

30 a second protrusion provided on at least one side in the optical axis

direction of a portion of the cam groove with which the cam pin mates when the driving frame is retracted;

wherein, in a state where the lens group has been advanced, the cylindrical portion of the cam pin may contact the first protrusion to prevent the cam pin from demating from the cam groove, and

in a state where the lens group has been retracted, the cylindrical portion of the cam pin may contact the second protrusion to prevent the cam pin from demating from the cam groove.